

to have escaped all the dangers that beset him in the Congo region, and to be on his way back to Europe.

WITH the beginning of next month a party organised by the German New Guinea Association will start from Hamburg. The command of the expedition has been intrusted to Dr. Schraber, one of the staff of the Hamburg Observatory, who was chief of the scientific expedition sent in 1882 to the southern hemisphere. The preparations are almost completed. Six experienced foresters have been already sent on in advance. Fifteen block-houses have been constructed, some at Hamburg, some in Norway, to be put together at chosen points in New Guinea. Forty Malays have been hired in Java to act as bearers and servants, and five persons trained in various branches of natural science will form the staff of the party. Their explorations will be confined to the portion of the island which is under the German protectorate, and will, it is expected, occupy about three years.

THE Milan Society for the commercial exploration of Africa is preparing a new expedition to Zeila and the neighbouring districts. It will be led by Count Peter Porro.

THE census returns of the provinces of Bosnia and Herzegovina for 1885 show an increase of 15 per cent. in the population since the previous returns for 1879, the respective figures being 1,158,440 and 1,336,101. Nearly all the inhabitants are of South Slavonic (Servo-Croatian) stock and speech, and, according to religions, they were distributed in 1885 as follows:—Musulmans, 492,710; Orthodox Greeks, 571,250; Roman Catholics (Greek and Latin rites), 265,788; Jews, 5805; Miscellaneous, 548.

THE Viennese firm of Hartleben has begun the publication of Dr. F. Umlauf's important work on the Alps, entitled "Manual of Alpine Sciences." It will be issued in fifteen parts.

FATHER LEO M. ALISHAN, of the Armenian Mekhitarist Congregation of St. Lazarus near Venice, has recently published a sumptuous work entitled "Sissian," the term applied by the Armenians to the province of Kilikia at the end of the twelfth century, when it was governed by Leo the Magnificent. The work deals with the physical geography, history, and literature of this region of Asia Minor, and contains numerous maps, fac-similes, and illustrations, besides several valuable unedited documents.

THE *Bollettino* of the Italian Geographical Society for December has a short obituary notice of the distinguished geographer and geologist, Prof. Giuseppe Ponzi, who was born in Rome in 1805, and died there on November 30, 1885. He filled the Chair of Geology in the Roman University since the year 1866, and on his careful surveys of the basin of the Tiber was based the first geological maps of that district.

THE same *Bollettino* contains some particulars of the Capucci-Cicognani Expedition, which arrived at the capital of the Anfari (Sultan) of Aussa at the end of August. Here it was detained by the Anfari, who demanded 3000 dollars for the right of passage, and after tedious negotiations Capucci returned to Assab in order to procure this sum, and thus obtain permission to pass on to the kingdom of Shoa in Southern Abyssinia. On his return he induced the Anfari to accept less than half the amount claimed, on payment of which the Expedition continued its journey through Gafra for Shoa.

To the *Bollettino* Count A. Salimbeni sends a description, with illustration, of the bridge he has now completed over the Temcha, a river in Gojam, which flows through the Birr to the Abai (Bahr el-Azrag, or Blue Nile). The bridge, the first constructed in Abyssinia since the time of the Portuguese, spans the river with three arches of 85 metres each, is 4 metres wide, and has a total length of 38 metres. The work, which was begun in December 1884 and finished the following March, is looked on as a marvel by the natives, and has given great satisfaction to King John.

#### THE BENEFITS WHICH SOCIETY DERIVES FROM UNIVERSITIES<sup>1</sup>

NEXT, I mention as the subject for university study, Psychology, the nature of man's soul, the characteristics of his mental and moral activity. This science has lately made great progress,

<sup>1</sup> An Address by D. C. Gilman, President of the Johns Hopkins University. Continued from p. 283.

—it has improved its methods and enlarged its scope. Those who are devoted to it appreciate the inherited experiences of the human race and are not indifferent to the lessons which may proceed from intuition and introspection; they study all the manifestations of intellectual and spiritual life; but, on the other hand, they are not afraid to inquire, and they know how to inquire, into the physical conditions under which the mind works; they watch the spontaneous, unconventional actions of children; they investigate the laws of heredity; they examine with curious gaze the eccentricities of genius, and with discerning, often with remedial eye, the alienation of human powers, and they believe that by a combination of these and other methods of research, among which experiment has its legitimate place, the conduct of the human understanding and the laws of progressive morality will be better understood, so that more wholesome methods of education will be employed in schools of every grade. They acknowledge the superiority of the soul to the body, and they stand in awe before the mysteries which are as impenetrable to modern investigators as they were to Leibnitz and Spinoza, to Abelard and Aquinas, to Aristotle and Plato, the mysteries of man's conscious responsibility, his intimations of immortality, his relations to the Infinite.

I do not know whether philosophy is on a "return to Kant," or to common sense, but I believe that standing firm on the postulates, God, Soul, and Immortality, it will in years to come disentangle many perplexities, brush away heaps of verbal accumulations, and lead the mind to purer and nobler conceptions of righteousness and duty. I go even farther, and, as I believe that one truth is never in conflict with another truth, so I believe that the ethics of the New Testament will be accepted by the scientific as well as the religious faculties of man; to the former, as Law; to the latter, as Gospel.

In confirmation of these views, let me quote to you the language of that one among us who is best qualified to speak upon this subject.

"The new psychology, which brings simply a new method and a new standpoint to philosophy, is, I believe, Christian to its root and centre; and its final mission in the world is not merely to trace petty harmonies and small adjustments between science and religion, but to flood and transfuse the new and vaster conceptions of the universe and of man's place in it—now slowly taking form and giving to reason a new cosmos and involving momentous and far-reaching practical and social consequences—with the old scriptural sense of unity, rationality, and love beneath and above all, with all its wide consequences. The Bible is being slowly re-revealed as man's great text-book in psychology, dealing with him as a whole, his body, mind, and will, in all the larger relations to nature and society, which has been so misappreciated simply because it is so deeply divine. That something may be done here to aid this development," continues the lecturer, "is my strongest hope and belief."

The study of Society engages the earnest interest of another set of men, and the apparatus of their laboratory includes archæological and historical memorials of the activity of the race. The domain of history and political science has never been cultivated as it is in modern times. The discovery of primæval monuments and the interpretation of long hidden inscriptions, the publication of ancient documents once hidden in monasteries and governmental archives, the inquiry into primitive forms of social organisation, the development of improved modes of research, the scientific collection and classification of facts which illustrate the condition of ancient and modern communities and especially the interest awakened in the growth of institutions and constitutions, give to this oldest of studies the freshest interest. Papers which have lately been printed on rudimentary society among boys, on the laws of the mining camp, on the foundations of a socialist community, on the differences between parliamentary and congressional government, on the derivation of modern customs from the ancient beginnings of the Aryan people, on the nature of communism and many more such themes, afford illustrations of the mode in which the historical student among us, following the lines of Stubbs, Maine, Freeman, Seeley, Bluntschli, Roscher, and other celebrated workers, are advancing historical science, and developing the true historical spirit. The aim of all these inquiries is to help on the progress of modern society by showing how the fetters which now bind us were forged, by what patient filing they must be severed, and at the same time to work out the ideal of a society in which Liberty is everywhere, but "Liberty sustained by Law."

Languages and Literature have always received attention in universities, and will always be dominant for reasons which are

as enduring as language itself. We study tongues that we may know the men of other climes and other days; we study literature to enjoy it. As an aid to intercourse with people of other nations and for the purpose of keeping up with the record of modern science, nobody doubts that the modern languages are to be encouraged; but if we really would own the inheritance which is our birthright, if we wish to appreciate the masterpieces of literature, if it is well to put ourselves in sympathy with mankind, to laugh with those who have laughed, and weep with those who have wept, we must not be restricted to the writings of to-day. In science, it has been said, read the newest and latest; not so in literature—but the best. Isaiah and John, Homer and Æschylus, Cicero and Virgil, the “Nibelungen Lied” and Chaucer, Dante and Petrarch, are as full of life, beauty, instruction, and entertainment to us as to former generations. But from the classical standard of excellence this busy world would soon depart, were it not that in every university there are scholars keeping bright the altar fires, and warming us with the glow of their enthusiasm, whenever we come under their influence—sharpening too our wits by their critical acumen.

It is not uncommon, nowadays, to hear objections to classical education, usually from those who have never had it, and declamations against dead languages, usually from those who have never learned them. But the Humanists may unquestionably leave it to the Geologists to fight the battle for antiquity. The latter assure us that the older the fossils the more instructive their lessons; indeed, so much importance is attached to ancient animal life that the national government, with great liberality, encourages its study by promoting explorations, museums, and costly publications. Be it so; but let not the nation which does this forget that men are of “more value than many sparrows”; that the oldest literature is not old or dead, but fresh and living in comparison with the bones of the cave-dwellers; and that though a Megatherium is wonderfully instructive, an ancient epic or a drama is not unworthy of attention.

Jebb, in his life of Bentley, asserts that probably “the study of classical antiquity, in the largest sense, has never been more really vigorous than it is at the present day.” We might add that classical poetry has never been so popular—else why these innumerable editions and translations? Why, after Worsley, Butcher, Bryant, and their predecessors, are we reading aloud and smiling over the immortal *Odyssey* as it is given to us in the rhythmical prose of Palmer? This is a good sign; only it is well to remember that reading translations is not reading Greek, and, as Jebb goes on to say, we must not forget the difference between “the knowledge at second hand,” which the intelligent public can possess, and “the knowledge at first hand” which it is the business of the libraries and professorships of a university to perpetuate.

If the defenders of classical study would confine their argument to the line which was lately followed by Butcher, they would silence their opponents. “To Greece,” he says, “we owe the love of science, the love of art, the love of freedom—not science alone, art alone, or freedom alone, but these vitally correlated with one another and brought into organic union. . . . The Greek genius is the European genius in its first and brightest bloom. From a vivifying contact with the Greek spirit, Europe derived that new and mighty impulse which we call progress.”

But I must not pass from the subject without a word upon the study of language in general, that faculty of the human race which was never half understood until the universities of Germany entered upon the study of comparative philology, by the introduction of Sanscrit study. With this new torch they have thrown a flood of light upon the nature of speech, the history of our race, the brotherhood of nations, and the development of ideas which lie at the basis of all Indo-European civilisation.

The Shemitic tongues have long been subjects of university study, especially Hebrew and Arabic—the former so much esteemed as the language of the Old Testament that it used to be spoken of as the language of Paradise, and the latter being regarded as a key to the ideas and religion, the ancient literature and science, of one of the largest families of men. Of late years the domain of Shemitic study has been widened; libraries long hidden have been exhumed on the sites of ancient Babylon and Nineveh; records, the very existence of which was unknown at the beginning of this century, written in characters to which there was then but the slightest clue, are now read and printed and studied as a part of the history of mankind. Assyrian becomes a language of university study—not, indeed, for many scholars, but for a few, and the bearing of their discoveries is so

important upon the language and history of the Hebrews that one of the most learned of English theologians has recently said that, in respect to certain of the obscurer passages of the Old Testament, the world must wait for the light which would come from Assyriology.

Certainly, if the history of mankind is worth studying, if the lessons of the past are of value, language and literature, the ancient, the modern, the primitive, and the cultivated, will never be neglected among the studies of an enlightened community.

When we turn from Man to his environment, we soon perceive that mathematics lies at the basis of all our knowledge of this world. To count, to measure, and to weigh, are steps in civilisation, and as we extend our powers in these directions, we find that even the distance and mass of the planets, the form of the earth, the velocity of light, the mechanical equivalent of heat, and the unit of electrical resistance may be accurately ascertained, and the results, with many of the ideas which they involve, may become a part of the intellectual possessions of every educated person. Yet when we reflect that hardly any branch of knowledge is so depreciated by the average man as the modern advancement of pure mathematics, we must believe that its influence upon civilisation is not sufficiently considered.

Prof. Cayley, in a recent address, alluded to the connection of mathematics with common life, on the one hand, and with the deepest questions of philosophy, for example, the metaphysical ideas of time and space, on the other. As to its utility, he declared that he would defend this science as Socrates defended justice, quite irrespective of worldly advantages,—and then he proceeds to show the relations of mathematics to the certainty of knowledge, and to emphasise the idea that mathematical science is not built upon experience but upon certain fundamental assumptions—which are indeed found to be in conformity with experience. I wish that every student, however remote his studies may be from mathematical text-books, would turn to the opening passages of this discourse, and steady his own mental equilibrium by the assurance that the science which is most exact, and most satisfactory in its reasonings, is based upon fundamental postulates which are assumed and not proved by experiment. “In the theory of numbers,” he says, “there are very remarkable instances of propositions observed to hold good for very long series of numbers—and which are nevertheless untrue.”

If you persist in taking the utilitarian view, and ask me what is the good of Mr. Glaisher’s determination of the least factors of the missing three out of the first nine million numbers, the volume containing the sixth million having lately been published;—or if you put a much more comprehensive question, what is the use of the Abelian functions, I shall be forced to say, I do not know; and if you press me harder I shall be obliged to express my conviction that nobody knows; but I know, and you know, and everybody may know, who will take the pains to inquire, that the progress of mathematics underlies and sustains all progress in exact knowledge.

Whewell, the author of the “History of Inductive Sciences,” has brought out very clearly the fact that “the opening of Greek civilisation was marked by the production of geometry, the idea of space was brought to a scientific precision; and likewise the opening of modern European civilisation was distinguished by the production of a new science, Mechanics, which soon led to the mechanics of the heavens, and this step, like the former, depended on men arriving at a properly distinct fundamental idea, the idea of force.” Henry Smith, arguing for the value of his favourite study to mankind, points out the injury which would come to the intellectual strength of any nation “whose notions of the world and of the things in it, were not braced and girt together with a strong frame-work of mathematical reasoning. It is something,” he continues, “for men to learn what proof is and what it is not.” The work in mathematics at Alexandria or Syracuse two thousand years ago is as perfect in its kind and as direct and unerring in its appeal to our intelligence, as if it had been done yesterday at Berlin or Göttingen by one of our own contemporaries. In kindred language, Cayley, working forward as well as backward, and not unmindful, let us hope, of the Sylvestrian school upon this side of the Atlantic, in which he had been a master and a guest, thus concluded the address from which I have already quoted:—

“Mathematics has steadily advanced from the time of the Greek geometers. Nothing is lost or wasted; the achievements of Euclid, Archimedes, and Apollonius are as admirable now as

they were in their own days. Descartes' method of co-ordinates is a possession for ever. But mathematics has never been cultivated more zealously and diligently, or with greater success than in this century—in the last half of it or at the present time; the advances made have been enormous, the actual field is boundless, the future full of hope. In regard to pure mathematics we may most confidently say,

“Yet I doubt not thro' the ages one increasing purpose runs,  
And the thoughts of men are widened with the process of the suns.”

Many who hesitate to assent to these views of the relation of pure mathematics to civilisation, have no hesitation whatever in lauding applied mathematics, especially astronomy and physics; and no wonder, for within the memory of this generation, the world has gained these five results of physical science, steam locomotion, telegraphy, telephony, photography, and electric lighting. The first three, it may be said, have revolutionised the methods of human intercourse; the fourth has multiplied infinitely the means of communicating knowledge to the brain by what Sir William Thomson, following John Bunyan, has termed the Eye-gate; and the fifth, still in its dawn, includes possibilities of illumination, which we are not likely to exaggerate. But I have no time to eulogise these recent gains of civilisation; every word I can spare must be given to emphasise the fact, which is most likely to be forgotten, that these wonderful inventions are the direct fruit of university studies. I do not undervalue the work of practical men when I say that the most brilliant inventor who ever lived has been dependent upon an unseen company of scholars, the discoverers and the formulators of laws which he has been able to apply to methods and instruments. Nor do I forget that Faraday, like Shakespeare, was not a university man. But I mean to say that the manifold applications of science, about which everybody is talking, are only possible because of the abstract studies which universities promote. The electro-magnetic inventions which are now so multiform are only possible because scores of the greatest intellects of the century, one after another, have applied their powers of absolute reasoning to the interpretation of phenomena which could have been elucidated in any part of the world, and at any epoch of the past, if only the right methods had been employed. As long as universities held aloof from experimental sciences, these discoveries were not made, but when laboratories for investigation were established, an alliance was formed by mathematics and physics, and a new type of intellectual workers was produced, men whose hands were as cunning to construct and make use of instruments, as their brains were cunning to develop the formulas of mathematics. Take the splendid list of leaders who have followed Franklin and Rumford. They may be called the school of Sir Isaac Newton, so much of their inspiration is due to him. Not all were trained in academic walls; but not one failed to derive help from the advantages which universities provide and perpetuate.

One of the greatest of these men, Sir William Thomson, has lately been here. He was invited to come because it was believed that he, more than any other foreigner, could give an impulse to the study of physics in this country. His lectures were on a subject so remote from ordinary thought that I do not suppose its announcement conveys to those who are unfamiliar with the present position of physical inquiries, the least idea of what the lecturer was to talk about. Nevertheless, so great was the attraction of his powers, that a large company, two or three from England, one from Japan, several from beyond the Alleghanies, and many from this neighbourhood, most of them teachers and professors of physics, here assembled daily for a month to catch what they could of his learning and his enthusiasm. His words were taken down and have been given to the public in the form of lecture notes, and have thus reached already the principal seats of learning abroad and at home, but the chief results of his visit will be seen as the years go on in the increased devotion of his followers to their science, and in their emulation of his enthusiasm and concentration. Could I give you a more interesting example of the way in which a university may encourage physical science?

Notwithstanding all the progress in physics and astronomy which has been made during a century, those who know the most about these subjects will assure us that they are but at the alphabet of their science. Read the address of the Astronomer of Princeton, on a recent occasion, in which he enumerates the impending problems of astronomy; or that of one of our own staff, when he reviews the condition of electrical science, and declares that “as the region of the unknown is infinitely greater

than the known—there is no fear of there not being work for the whole world for centuries to come;” and he adds (to please, I suppose, the practical men) that in the applications of science, “the telephone, the telegraph, and electric lighting, are but as child's play to what the world will see.”

Chemistry is the child of the nineteenth century. The atomic theory, which lies at the foundation of all modern investigations, was announced by Dalton,—(that English Friend after whom it would not be amiss to name our chemical laboratory “Dalton Hall,” as a tribute alike to his eminence and to the society in which our founder was also trained),—Dalton's law, I say, was announced between 1804 and 1808, so that we can trace more distinctly than in most sciences the exact influences under which chemistry has grown up. Alchemy, the search for gold or for the philosopher's stone, never became a science, and contributed very little to the good of man; but when the universities of Europe, with their trained observers, their methods of accurate work, their habit of publication, and especially their traditional principles of co-operative study, directed their attention to the fundamental laws of atomic combination, the science of chemistry grew with rapidity, and with benefits to mankind which can never be enumerated. To no man were its early days more indebted than to Liebig—“of organic chemistry the very source and fountain-head”—good as a thinker, good as an investigator, good as a lecturer, but better still, as one of his most illustrious pupils has informed us, “in the peripatetic teaching of his laboratory.”

“It was at the small University of Giessen,” says Hofmann, from whom I have just quoted, that “Liebig organised the first educational laboratory that was ever founded. This school forms an epoch in chemical science. It was here that experimental instruction such as now prevails in our laboratories received its earliest form and fashion, and if we are proud of the magnificent temples raised to experimental science in all our schools and universities, let it never be forgotten that they all owe their origin to the prototype set up by Liebig, half a century ago.” The world appreciates the results which have proceeded from these laboratories—let it also be remembered that they were the creation not of industrial fabrics, not of mercantile corporations, not even of private enterprise, but of universities, and that the motive which inspired their founders and directors was not the acquisition of wealth, but the ascertainment of fundamental law.

The science which began with the century is going forward more rapidly than ever. Yet, if we examine a recent exposition of the principles of theoretical chemistry, we may discover that here, as in mathematics and in physics, the most expert perceive that the field which is open to investigation is much vaster than that which has been surveyed. Here, as everywhere else, the higher one ascends the greater his horizon. What good is to come to men from these researches it would not be wise to predict; but we may reflect on what has recently occurred. Within the last few months a boon has been conferred on humanity so great that all the cost of all the laboratories of all the lands in Christendom would have been a small price to pay for so precious a pearl. It came into the world never again to leave it, unheralded, unexpected, from the laboratory of science, to deaden for a few moments and then restore to life the organs of the sight, so that operations on the eye, hitherto dreaded, may be performed without the slightest pain. The chemists may modestly say that this discovery was an accident not to be compared in significance with the discovery of Avogadro's law. That may be so, yet this sort of accident does not happen in Africa or the Fiji Islands,—it “happens” where there are universities and laboratories, and trained men able and ready to observe, discover, and apply.

The hour has passed, and I have hardly introduced a theme which would be more appropriate for a volume than for a discourse. I have not spoken of the study of the structure of the earth, the physics of the globe, the laws of storms, the constituent rocks and minerals of the earth, the record of life hidden in ancient strata, the living kingdoms of animals and plants, the distribution of the races of men, the progress of archæology—or of innumerable subdivisions in the great branches of human knowledge. Such a task would be beyond my powers; I have only attempted to suggest what each one of you may study for the rest of your lives, as you watch the growth of universities and the progress of knowledge. I have purposely left for another occasion all questions pertaining to professional and technical education.

A few miles east of one of my former homes—the settlement of Berkeley, in California—there is an isolated peak of moderate height, from the top of which you may survey an area equal to that of the State of New York. From Mount Shasta on the north to Mount Whitney on the south, you may trace the jagged, often snow-white, crest which bears the name of Sierra Nevada. Here and there a peak rises a little higher than its neighbours, and can be identified from the look-out; but human vision cannot see the chains beyond the chains, nor the marvellous valley Yosemite and the beautiful Lake Tahoe which are sheltered within the nearest range of hills. All that the eye can distinguish on the horizon are a few of the loftiest summits as it turns toward the east, and a glimpse of the Farallone Islands as it turns toward the west. So to-day, from a hill not very high, we have looked upon a broad area, distinguishing only the chief features of the landscape,—but we have seen the mountains and the sea.

### A NEW ISLAND IN THE SOUTH SEAS

ACCORDING to the *Melbourne Argus* of December 10, further news respecting the volcanic outbreak which recently occurred in the Friendly Group has been received from Fiji, *via* Auckland. Intelligence concerning it first arrived there by the schooner *Midge*, from Tonga. Before the vessel arrived, however, the eruption had already reported itself to the eastern portion of the Fiji Group, and the *Argus* Correspondent furnishes the following account of it:—

“At Ogea, one of the island outposts lying nearest to the point of eruption, and distant from it about 175 miles in a south-west direction, heavy discharges as of siege artillery were heard on October 14, and continued at short intervals up till the 17th. It is to be noted in connection with this that the outbreak occurred, or was first noticed, in Tonga on the 12th, and that mention is made of ‘a low rumbling noise at intervals during the night.’ During the continuance of these heavy discharges, Ogea was frequently and very violently shaken by earthquakes, so that the people were in a state of great consternation. At night-time a lurid glare, as from a great fire, was visible in the direction of Tonga, and these phenomena culminated in a terrific roar on the morning of the 17th, such as might be produced by thousands of big guns being discharged simultaneously. Next day a small vessel which had been working the open sea between the Fijian and Friendly Groups, called in to Ogea and reported having passed through vast fields of pumice. This served to confirm the idea generally prevailing that a terrible calamity in the form of a volcanic outbreak had befallen and had overwhelmed Tonga.”

The Tonga Correspondent of the *Fiji Times*, who was an eye-witness of the eruption, has communicated the following account of it to that journal:—

“On the night of Sunday, October 11, 1885, more than one slight shock of an earthquake was felt, and lightning was seen at intervals at different quarters. Several persons noticed a low rumbling noise at intervals during the night. At sunrise on Monday morning, October 12, the natives reported that a steamer was coming in. The Tongan Government was induced to send out the schooner *Sandfly*, and about noon on the day the outbreak was first seen Dr. Buckland, accompanied by the Premier and various officials, started to see the volcanic eruption which it was evident was going on. The *Sandfly* returned on the 16th inst. and reported having reached [the scene of the eruption on the 13th, but too late to see much: that on the following morning a small island became for the first time visible, and that the vessel had approached within about a mile of the shore, but a strong current prevented nearer approach. On October 17 a number of residents chartered Tugi's schooner, and started for the spot, and on the succeeding morning witnessed a spectacle of such surpassing magnificence as men have seldom been permitted to view. An island of, I believe, not less than nine miles superficial area was seen by us, which had been upheaved, presuming [the *Sandfly's* observations to be correct, within four days. On its shore a submarine volcano was belching out a fearful quantity of what I believe to be steam and salt water, throwing it upwards in a column for a distance, I was told by a competent gentleman, of a mile. To give an accurate description in detail of the column and eruption generally is impossible. It is indescribable. The shapes assumed by the steam clouds, after the greatest height had been reached, were inexpressibly

beautiful, and were fantastic to a degree. While these clouds were still wreathing and curling, another and another column, with well-defined lines, would shoot upwards, and the downpour of liquid and the wreathing and curling were again and again renewed. The island, named by many ‘Fakaogo fei lagi,’ or Takaogo Island, is situated about 16 or 20 miles to the north-west of Honga Hapai. I have not a chart to refer to, but believe it is on the site of the Cudibras (?) Reef, marked on the chart, and which is some distance south of Tonga and Kao. Vessels coming here from Fiji will be able to visit the island without going much from their course. At night time flashes of light are seen, but whether proceeding from flames of volcanic fire or from the electricity generated during the condensation of the volumes of steam, will be best known to scientific people. Many and various are the conjectures as to how the island has been formed, and conjectures alone can be made until the island is visited. The whole matter is likely to create great interest, and will afford an opportunity to scientific people to ascertain, with a tolerable amount of certainty, the exact manner in which these islands of the Pacific have in past ages been produced. The height of the island on the occasion of the visit of the *Sandfly* was from 20 to 30 feet, and when we saw it on Saturday it appeared to be from 200 to 300 feet.”

### UNIVERSITY AND EDUCATIONAL INTELLIGENCE

OXFORD.—Whatever be the fate of the new Moderations Scheme now being considered by a Committee of Congregation, the present academic year will be remarkable for the vigorous onslaught made by the younger Faculties on the time-honoured requirement at Pass Moderations of “a little Latin and less Greek.” The waste of a year over classical work having no direct bearing on the final school chosen by the student had become so great a tax on time and patience that, when a blow was at last struck at the evil, but little opposition was expressed in quarters where small sympathy with modern studies was thought to dwell. If the Committee can agree on a working scheme, a great relief will be afforded to students in Natural Science in Oxford.

It is with much pleasure that we notice, after long interval, two Colleges offering Fellowships in Pure Science. Merton offers a Fellowship in Physics, and Lincoln in Biology. Besides these Fellowships, Pembroke has a vacant Medical Fellowship.

The nomination of Examiners in the Honour School of Natural Science (now conducted by a Committee of the Faculty) took place this week. Prof. Burdon-Sanderson succeeds Dr. Gamgee in Physiology, Mr. H. B. Dixon succeeds Mr. Vernon Harcourt in Chemistry, and Mr. J. Walker succeeds Mr. Hayes in Physics.

The following courses of lectures and practical classes will be held during the present term:—

In the Physical Department of the Museum, Prof. Clifton lectures on Electricity, Mr. Walker on Polarised Light, and practical instruction is given by the Professor, Mr. Walker, and Mr. Selby. At Christchurch Mr. Baynes lectures on Thermodynamics, and gives practical instruction in Electrical Measurements. At Balliol Mr. Dixon lectures on Elementary Heat and Light.

In the Chemical Department of the Museum Prof. Odling lectures on the Phenic Compounds; Mr. Fisher continues his course on Inorganic Chemistry, and Dr. Watts continues his course on Organic Chemistry. Practical instruction is given by Messrs. Fisher, Watts, Marsh, and Baker. Practical instruction is also given in the Christchurch and Balliol Laboratories.

In the Morphological Department Prof. Mosley lectures on the Anatomy of the Vertebrata; Mr. Spenser has a course on Elementary Animal Morphology; and Mr. Barclay Thompson, on the Osteology and Distribution of the Amphibia and Reptilia. Mr. Arthur Thomson lectures on Human Myology, and has a class for Practical Anatomy. Practical instruction in Comparative Anatomy is given by the Professor, and Messrs. Robertson and Spenser.

In the Physiological Department Prof. Burdon-Sanderson lectures on the Physiology of the Nervous System, and will also give twelve elementary lectures during the present and next term on the Vital Phenomena of men and animals. Mr. Dixey lectures and has a class for Practical Histology; Dr. Gotch has a class for Practical Physiology; and Mr. Poulton lectures on the Physiology and Histology of the Special Senses.